

1905

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Forty Years and After

A Reply to Dr. Osler

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MAY 23 1905
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TORONTO

Reprinted from "THE CANADA LANCET" for April
1905

FORTY YEARS' AND AFTER—A REPLY TO DR. OSLER.

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M*r. President and Gentlemen,*—A short time ago I was asked by the President to read a paper on Dr. Osler's recent address, at Johns Hopkins University. At first I declined, stating that some older and more experienced member should be chosen for the discharge of so important a task. The request was, however, renewed and this is my excuse for appearing before you on this occasion.

I.—DR. OSLER'S POSITION.

"I have two fixed ideas well known to my friends. The first is the comparative uselessness of men above 40 years. This may seem shocking, and yet, read aright, the world's history bears out the statement. Take the sum of human achievement in action, in science, in art, in literature, subtract the work of the men above 40, and, while we should miss great treasures—even priceless treasures—we would practically be where we are to-day.

"It is difficult to name a great and far-reaching conquest of the mind which has not been given to the world by a man on whose back the sun was still shining. The effective, moving, vitalizing work of the world is done between the ages of 25 and 40, those 15 golden years of plenty, the anabolic or constructive period, in which there is always a balance in the mental bank and the credit is still good.

"In the science and art of medicine there has not been an advance of the first rank which has not been initialed by young or comparatively young men. Vesalius, Harvey, Hunter, Bichat, Laennec, Virchow, Lister, Koch—the green years were yet upon their heads when their epoch making studies were made. To modify an old saying, a man is sane morally at 30, rich mentally at 40, wise spiritually at 50 or never. The young men should be encouraged and afforded every possible chance to show what is in them.

"My second fixed idea is the uselessness of men above 60 years of age and the incalculable benefit it would be in commercial, political and professional life, if, as a matter of course, men stopped work at this age. In that charming novel, *The Fixed Period*, Anthony Trollope discusses the practical advantages in modern life of a return to this ancient usage, and

Read at the Toronto Medical Society, 16th March, 1905.

the plot hinges on the admirable scheme of a college into which at 60 men retired for a year of contemplation before a peaceful departure by chloroform.

"As it can be maintained that all the great advances have come from men under 40, so the history of the world shows that a very large proportion of the evils may be traced to the sexagenarians, nearly all the great mistakes politically and socially, all of the worst poems, most of the bad pictures, a majority of the bad novels, not a few of the bad sermons and speeches."

Subsequently, Dr. Osler remarked as follows:—

"Nothing in the criticism has shaken my conviction that the telling work of the world has been done, and is done, by men under 40 years of age. The exceptions which have been given only illustrate the rule.

"It is true, or the general good if men at 60 were relieved from active work, but we would miss the energies of some younger-old men, but on the other hand it would be of the greatest service to the sexagenarians themselves."

"I said that man's best work was done before forty and at sixty he should retire."

"No man ought to think of writing a book until he is 40. Up to that time he should be engaged upon other and more important things, creating what he intends to write about. That is the way it was with me. I was too busy at forty to write."

"Take Darwin as an instance. His greatest work was done when he was a young man exploring South America."

II.—OPINIONS REGARDING DR. OSLER'S VIEWS.

The *London Globe* remarks that "Dr. Osler's views are disproved by the patent fact that a very large proportion of the men who are doing the best work in the world to-day are over sixty years of age."

The *St. James Gazette* says: "We know several men over sixty who will refuse to discuss it, yet five years offer such an opportunity for argument that Dr. Osler may be able in 1910 to die a martyr to his own cause."

President Jas. B. Angell, of the University of Michigan, does not subscribe to the statement that men lose their usefulness when they reach the age of sixty years.

Dr. Henry M. Hurd, President of Johns Hopkins University, says:—

"It was natural that in making an excuse for leaving Johns Hopkins and going to Oxford he should say that he felt that his work for the university had been finished, and that some one should come to take his place—but there he should have stopped."

"I have known Dr. Osler so long that I have become accustomed to his views. When I first met him some sixteen years ago I was not in the first blush of youth. At that time Dr. Osler was: t quite forty and he said that he thought a man's work should cease at forty. After a few years he said no man should attempt to do anything after he had reached fifty. Now that he has passed fifty he says that sixty is the limit, and I venture to say that within a few years he will declare that seventy is not a bad time to quit.

"Many of us feel that the address was unfortunate. It is safe to say that when man reaches the limit, and not until then, he advertises the fact by poor work."

"Cato learned Greek at eighty; Sophocles
Wrote his grand "Oedipus" and Simonides
Bore off the prize of verse from his compeers
When each had numbered more than four score years.
And Theophrastus, at four score and ten,
Had but begun his "Characters of Men,"
Chaucer, at Woodstock, with his nightingales,
At sixty wrote the "Canterbury Tales."
Goethe, at Weimar, toiling to the last,
Completed "Faust" when eighty years had past,
Something remains for us to do or dare;
Even the oldest tree some fruit may bear.
For age is opportunity no less
Than youth itself, though in another dress."

In this fashion did Longfellow anticipate and refute the paradox put forward that men should be laid upon the shelf at the age of sixty.

S. E. Kiser, in the *Chicago Record*, among other things says:—

"There's poor old Tolstoi; how unwise and mean his actions are
Compared with those of Nicholas, the glorious young Czar.
How grand the world might be to-day if Gladstone, Tennyson,
Grim Bismarck and great Hugo all had died at forty-one."

Lord Macaulay said in the House of Commons in 1841: "It is the law of our nature that the mind shall attain its full power by slow degrees; and this is especially true of the most vigorous minds. It would be impossible to name any writer of the first order whose juvenile performances were his best. That all the most valuable books of history, of philology, of physical and metaphysical science, of divinity, of political economy, have been produced by men of mature years, will hardly be disputed. The case may not be quite so clear as respects works of the imagination. And yet I know no work of the imagination of the very highest class that was ever, in any age or country, produced by a man under thirty-five. Whatsoever powers a youth may have received from nature, it is impossible that his taste and judgment can improve, that his mind can be richly stored with images, that he can have observed the vicissitudes of life, that he can have studied the nicer shades of character. On the whole, I be-

lieve that I may, without fear of contradiction, affirm this, that of the good books now extant in the world more than nineteen-twentieths were published after the writers had attained the age of forty."

The British Medical Journal of recent date editorially remarks:—"Professor Osler's statement that all the best intellectual work is done by men under forty is not by any means borne out by facts. To Dr. Osler's dogmatic assertion we oppose the above equally positive statement by Macaulay an oracle of at least equal authority. This is in accord with the fact—which can scarcely be denied except by those who love paradox more than sober truth—that the intellectual powers do not reach the stable equilibrium of full and harmonious development till the age of forty or even later."

The *Texas Medical News* says, "History, we believe, does not bear out the eminent doctor in his statements. Who, for a moment, doubts that the world is better, nobler, purer, for the work done in it by men who, before the age of forty, were scarcely known, or, if known, were more productive after that age than before? Suffice it to say, then, that Dr. Osler's statements are not borne out by the opinions of practical character students. We think it unfortunate, to say the least, that this statement was made under the circumstances."

The *Journal of the American Medical Association* remarks that, "No one knows better than Osler that old age is a term that is applied arbitrarily to any specified age; that some men are old at 50, while others are young at 80. We are all as old as our arteries, and as young as we feel."

In *American Medicine* we read: "Dr. Osler blames old men for being no longer young, a foolish criticism at best, and too indiscriminately made, because much of the energizing work and worry of the great discoveries have been made by men over 40; but he fails utterly to say a word against their wretchedest fault—the rejection of new truth that the young men have discovered."

The *Kansas City Medical Record* thinks that "Professor Osler made one great and only blunder of his life."

The *Maryland Medical Journal* is of opinion that "the uses of old age should be exploited. Its good fruits are of necessity precious, being rare, for the old are but 4 per cent. of all of us."

The *Medical Mirror* in an editorial declares, "the medical profession does not agree with Dr. Osler. History arrays many examples against his theory. Science refutes it. Every time one turns around one sees living evidences against it, and Dr. Osler's own work contradicts the truth of his remarks. The nearer he approaches the period of euthanasia, the better the quality of his work becomes and his own work differs very little from that of countless co-workers in the field of medicine. It is

sincerely to be regretted when leaders in medicine promulgate such iconoclastic thoughts."

Says the *Edinburgh Medical Journal*, "Study till 25, research until 40, profession till 60, and then retirement. Well and good for teachers; for the rest of the working world, not so. For science pure and simple, it may apply; for art, for literature, for statecraft, it does not apply. It comes to this that scientific work implies creative energy, akin to that of the man of action; and he is at his best in the physical prime of life. The men of profound thought, of poetic insight—a Kant, a Hegel, a Wordsworth—seem to penetrate more deeply into the mysteries of life, to see more clearly the beatific vision, the longer they have lived. Lord Bacon tells us that 'Young men are more fitted to invent than to judge, fitter for execution than for counsel, and fitter for new projects than for settled business; for the experience of age, in things that fall within the compass of it, directeth them, but in new things deceiveth them.'"

The *Medical Age* makes the following comment on the matter: "If Professor Osler cannot give us a 'de Senectute' gospel more elevating than that which would decree the old man's insufficiency to be measured by Dr. Osler's conceptions of utility, he had better not have delivered his message."

Victor Hugo, no mean mind, said that "Forty was the old age of youth and fifty the youth of old age."

From Robert Browning, the poet, we have the statement that, "The last of life is that for which the first was made."

While making the above quotations I am not forgetful of the fact that Goethe said we get no new ideas after forty, and that Vierordt says the brain attains its maximum weight at 20. But it should be borne in mind that Goethe's whole life disproved his own theory, and that there is a vast difference between brain weight and brain development.

III.—SCIENTIFICALLY CONSIDERED.

It must, of course, be conceded to Dr. Osler that as no one can live on indefinitely, a period of decline of intellectual and artistic power must sooner or later set in. His error is in fixing the meridian of creative life too early. If he will give this matter more attention from the pathological standpoint, and cease to depend on statistics which may appear to prove anything while establishing nothing, he will probably add ten or even twenty years to the span of creative activity; he may even see cause to prolong it to the proverbial three score and ten. It is not safe to set definite limits to the capacity for development. That of the mind may go on long after the body has ceased to grow, and may still go on while the physical powers are in steady decline. The objects that interest the artist may vary, and his point of view and method of treatment may

change, but all this is quite compatible with increasing excellence of artistic product till a period of life far beyond the limit arbitrarily and hurtfully set by Dr. Osler.

The truth probably is that whatever decay in creative power becomes a noticeable concomitant of advancing age is due not to the advance of age so much as to wrong habits of life. Dr. Osler, as a pathologist, knows perfectly well that the vast majority of people, even those who think themselves all right, are in a pathological, not a physiological condition. So long as they injure themselves by over-indulgence in eating, drinking, sleeping and the use of stimulants and narcotics, it is mischievously unfair to attribute to the infirmity of age the decay that is really due to suicidal practices. The wonder in regard to most persons should be not that they survive with decaying power, but that they survive at all. For those who persist in living to eat, drinking to enjoy, sleeping to enervate and using whiskey or tobacco to exhilarate or neutralize curtailment of creative power is inevitable at any age, and if the impairment becomes more noticeable after the meridian of life is past, that is largely because the mischievous habits have been longer practised. Some constitutions can stand more bad treatment than others, but none can escape a check in development, even though loss of power may not be positively predicable.

Dr. Osler is much too careful a scientist to seriously pretend that age is the true measure of existence. The standard is arbitrary and, to group men according to the number of years they have been in the world is no more scientific than to group them according to their weight, or their height, or to reckon the world's progress by centuries. Doctors themselves discovered this long ago, and set up the arterial standard. "Man is as old as his arteries," they said. In our everyday wisdom we have the proverb, "A man is as old as he feels, a woman as old as she looks." We hear much about "young old men," and "old young men," paradoxes well understood. Dr. Osler is aware of this, and also of the famous poetical passage which tells us that life is not measured by years, but by deeds, and thoughts, and aspirations. This is sound science and good poetry.

But it seems to us that the radical fallacy of Dr. Osler's doctrine is shown by something that he looks upon as confirming it. He holds that up to the age of forty a man should devote himself to acquiring knowledge as to matters of fact, and that not until after that age should he attempt to generalize. Observation, then according to him, is the proper pursuit of a man at the height of his powers, while deduction is allowable only when he has begun to degenerate; in other words, the acquisition of knowledge calls for mental powers superior to those that suffice for systematizing that knowledge and employing it as a basis for teaching and for the formation of theories. The senses, in other words,

are higher than the intellect. There are some of us who think it a higher intellectual function to make the best possible use of recorded observations than to do actual laboratory work. From this point of view and from that of their tendency to discourage middle-aged men, we think that some of his remarks are to be regretted.

It is a well-known fact that the mind and the body do not always develop simultaneously. Nestor complained that the gods do not bestow the wisdom of years until they have withdrawn the vigor of youth. Along this line there are so many exceptions, however, that in a hundred examples, probably 45 would contradict the evidence offered by the other 55. We can well imagine some one urging that 51 per cent. constitutes a rule, and that 49 per cent. must be reckoned as an exception. Failing to dislodge him from this position, we might be obliged to admit that 51 out of every hundred men are declining at 40 and becoming of reduced economical use at 60.

The study of history bears out the statement that a large majority of those who become geniuses at a young age also die young; whereas those who develop their intellectual powers later in life will live to much greater ages. The early flame soon exhausts itself and becomes extinguished; but the later fire and slower to kindle, burns far on into the night.

But Dr. Osler's views are not new. More than seventy years ago similar opinions were expressed by Dr. James Johnston, physician to King William IV. in his book on "The Stream of Human Life." Then, again, we have D'Israeli in *Coningsby* praising many who became geniuses at young ages. The genius, however, is one thing, and the steady, hardworking student till 25 or the methodical investigator till 40, is quite another. The genius is a law unto himself; he is an originator, a creator, and not a student or an observer, in the ordinary sense. We contend also that the views we are combating are radically wrong in some important respects. Had Shelley, Keats, Chatterton, Byron, Burns, McCheyne, Bichat, Laennec, Clifford, Stevenson, and a host of others, not written before they were 40, they would never have written at all, and their epoch-making, vitalizing discoveries and creations of thought would have been wholly lost to the world. Then, again, it is not necessary to wait till 40 before one writes. Great writings have been given to the world before that age, as we know from a study of the lives of the men already referred to. It would appear that the following statements may be accepted as true: (1) that genius owes its greatness less to study and observation than to a peculiar insight; (2) that great books, paintings, inventions, and discoveries, have been the work of men under 40, which would have been lost had they not been published while these

persons were under 40; (3) that there are countless examples of great books having been written, poems composed, canvasses painted, and discoveries made by men long after they had passed their fortieth, or even their sixtieth year. It is therefore contrary to the records of history and the teachings of science that men should practically do no writing till they are 40, or cease writing when they become 60. No arbitrary age limits can be laid down to determine the productiveness of the mind.

There is another point where the case against old men appears to break down. It may be asked: Are there fewer eminent old men relatively to their numbers than young men on the same test? This question may be answered confidently in the negative. The men from 60 to 75 yield a larger percentage of men of talent who take a prominent place in the affairs of the world than do those between 25 and 40.

There are marked differences as to the age at which people attain their mental development. Gladstone, Carlyle, Weierstrass, are instances of the highest types of mental development coming late. They ripened slowly, but remained at their prime a long time. The meaning of this is plain. Some men are at their best at thirty, some at forty, some at fifty, some at sixty and over. And it is not hard to find a reason for this. The laws of heredity and the environments of any person make for great differences in his vigor, development and longevity. Social conditions also play an important role in a man's life-history. Furthermore, we must not forget the remarkable influence of opportunity or circumstances. The country churchyard may contain mute Miltons and unknown Cromwells. Oyama's day came because of Russia's wrongful aggressiveness. So in the world of arts, sciences and letters the finest fruits may not be borne until late in the autumn, because, figuratively, of an unfavorable spring and summer.

IV.—PRACTICALLY CONSIDERED.

There is one aspect of Dr. Osler's address that merits attention and praise, namely, the credit he gives young men for what they are doing and the encouragement thrown out by him to inspire them to even greater achievements. He has always been pre-eminently the young man's friend, and has done much to discover and bring forward many a bright young man. In this regard Dr. Osler's work will remain a precious legacy long after he is gone. A man's influence over others is sometimes of far greater moment than anything he may actually do himself, as in the cases of Thomas Arnold and Edward Thring.

With regard to old men, however, the case is different. There are hundreds of thousands of men in America at and beyond the sixty year period who are still in active life and forced to remain there by inexorable circumstances. Many of them have to fight to keep their place in the

ranks and prevent themselves from being crushed to the wall. They feel that it is a cruel fate that requires even greater exertion of them at a time when they are less able than in early manhood to work. Several men of this class, reading the distorted view presented by Dr. Osler's words, have committed suicide, the connection between their action and the doctor's address being shown by press clippings. Such a case was that of an aged scientist in St. Louis recently, who chloroformed himself after discussing the whole question of the uselessness of old men. Dr. Osler would, we feel sure, be the last person in the world to make more difficult the task of the old man in factory or workshop or at the clerk's desk, toiling for bread for himself and his loved ones. We cannot all retire at sixty. Wisdom comes with age. The old man has earned the right to continue to earn his living. An opinion coming from a physician of such high standing as Dr. Osler is bound to carry much weight with it.

Since David wrote the Psalms the world has passed through the greatest struggles for existence in its history, and every day the struggle is growing more intense. Medical science may be able to lengthen a man's years, but industrial competition is surely pushing the hands of the clock ahead on the dial of a man's career. The men who, like Gladstone, develop late in life, find the struggle fiercest in their youth; the men who develop early, and these are a majority, find it in advancing years. In this respect it may be that Dr. Osler's words have done much harm; for while he spoke as a humanitarian that men of sixty should retire, it may only have the effect of making it still more difficult for the old man to keep his place in the stern struggle for an existence, and thereby add another burden to those brought to him already by reason of his years.

V.—HISTORICALLY CONSIDERED.

The world will ever marvel at the remembrance of Gladstone's fight for Home Rule in Ireland after he had passed eighty, of Von Moltke's crushing victories against Austria when he was a sexagenarian, and against France when he was a septuagenarian. Bismarck was fifty-two when he organized the North German confederation, fifty-six when he saw its culmination of success with the crowning of the King of Prussia as German Emperor, and seventy-five when he resigned the reins of power.

Johann Kepler was fifty-nine years of age when he announced his discovery of the distance from the planets to the sun; Bacon was fifty-nine when he published "*Novum Organum*"; Gassendi was fifty-eight years old when he published his atomic theory, and Newton was forty-four when he published his law of gravitation, and older when he wrote his *Principia*.

Dealing with the rather surprising claim that if the work of men more than forty was subtracted from the world's record we should be

practically where we are, let us give a few contradictory examples. Among statesmen, Gladstone, Bismarck, Palmerston, Salisbury, Chamberlain, Burke, Chatham, Washington, Peel, Grey, Lincoln, and Sir John Macdonald were more than forty when their greatest work was done. Caesar, Cromwell, von Moltke, Lee, Grant, Marlborough, Nelson, Wellington, Blücher, Farragut, Roberts, Campbell, Kitchener, Nogi, Kuroki, Togo, Nodzu and Oyama are warriors in this category. The same is true of Shakespeare, Milton, Goethe, Carlyle, Dryden, Scott, Voltaire, Flaubert, Newman, Macaulay, Gibbon, Tennyson and Hallam among great writers; while among scientists we might name, Spencer, Darwin, Newton, Jenner, Faraday, Avebury Galileo, Tycho Brahe, Fulton, Kepler, Brewster, Copernicus, Huxley, Humboldt and Kelvin as falling beyond the comparatively useless line. Columbus was fifty-six years old when he discovered this continent, and Washington fifty-seven when he became President. Captain James C. Cook met with an untimely death at the age of fifty-one while conducting his third voyage of discovery among the Pacific Islands.

If we may accept Scriptural testimony in a purely scientific discussion, we know that in the days of the prophets there were many men who lived to an extreme old age, and whose natural strength was not abated. Some thousands of years later, the Psalmist said, "The years of a man's life are three score and ten." We have some reason to understand that he meant the useful years. At the present moment great events are transpiring in the Far East. The leaders of Japan, the Emperor, Marquis Ito, Admirals Togo and Kamimura, Marshal Oyama, and Generals Nogi, Kuroki and Nodzu, nine in all, average sixty-one years. These men are brilliant in a very high degree, both in initiating plans and in carrying them to successful completion.

We do not believe that Dr. Osler is correct in this matter and are quite sure that the examples of the medical men he adduced as illustrating the tenability of his position do not bear him out in the least. When we recall the tremendous importance commonly attached to the work done by Virchow up almost to the very end of his long life, we cannot admit that it illustrates such a belief. As for Bichat, it is true that he did his work while he was young, for at thirty-one he died, and we shall never know what he might have accomplished had he lived to old age. Harvey was born in 1578 and published his work, "*Exercitatio de Motu Cordis et Sanguinis*," in 1628 when he was fifty years old. Lister was born in 1827, and was close on to fifty years of age when he began to convert the medical world to the principles of antiseptic surgery; and while Koch was born in 1843, and was within one year of forty when he discovered the tubercle bacillus,

even the least appreciative of his admirers will admit that he has done some good work since 1882.

Darwin published his "Origin of Species" at fifty, and his work on moulds at seventy-two, the year before his death. John Hunter was sixty-five when he died. He rose from a meeting in St. George's Hospital and died suddenly of angina, from which he had suffered for twenty years. The last twenty years of his life were very active ones. He was fifty-seven when he made the experiment of tying the stag's carotid, and fifty-eight when he tied the femoral artery to cure a popliteal aneurism. All these added to the sum of human achievement long after they had passed the dead line of forty years old. Dr. Osler published his first medical book when he was forty years old, and Dr. George M. Gould, the accomplished editor of "American Medicine," did not enter the medical ranks until he was forty years of age. Andreas Vesalius died at fifty, thus his brilliant career was cut short, and much that he might have done has been lost to the world. His great work, however, was accomplished in his last ten years. Laennec, the distinguished physician, pathologist, anatomist and inventor of the stethoscope, died at the young age of forty-five. And after death "no man worketh."

It is difficult to try to refute by statistics of greatness or of genius that he is wrong, because when examples of the manifestation of artistic power in advanced age are cited it is open to him to answer, at least plausibly, that the exception proves the rule. In spite of the multiplication of such instances he may still be able to assert that for all practical purposes the creative activity belongs to the period before forty, even when its manifestations are delayed till after that period of life.

One rejoinder to this would be that in case of the great poets like Shakespeare, Goethe, Browning, and Tennyson—and poetry is perhaps the supreme criterion by which to test the theory—their best work was not done before forty, but after it, and that it continued to improve as to the higher qualities so long as they continued to write. No competent critic would postpone Shakespeare's "Tempest," written when he was nearly fifty, to any of his earlier productions as a work of creative genius; or prefer "Locksley Hall" to "Locksley Hall Sixty Years After." Shakespeare, greatest of all literary artists, voluntarily ceased writing at forty-nine, but there is no reason to doubt his work would have continued to improve with experience and practice if he had chosen to continue it for another twenty years of healthful life. The same statement, *mutatis mutandis*, would hold good of the great historians, the great scientists, and the great philosophers. In short, it is impossible for Dr. Osler to establish by any induction, however wide, that his theory is even presumptively sound. Longfellow when he wrote his "Morituri Salutamus," from which

we have quoted and which is regarded as equal in merit and popularity to anything he wrote in his youth. The greatest of all Browning's poems, "The Ring and the Book," was published when he was in the sixth decade, and some of his most characteristic verse was produced in his eighth. Tennyson's rich and tender insight into the spiritual life of the soul was with him still as an octogenarian, notably in that exquisite lyric, "Crossing the Bar," in that wonderful dramatic idyll, "Rizpah." Then there is Milton at sixty completing his "Paradise." If Carlyle had died at forty, we would only have some essays and "Sartor Resartus" to know him by, as most of his essays, "Heroes and Hero Worship," "The French Revolution," "Cromwell," "Frederick the Great," and "Past and Present" were written between forty-five and seventy.

Dr. Johnson conducted the *Rambler*, the *Adventurer*, and the *Idler* from the fiftieth to the sixtieth year of age. His dictionary was published when fifty-five, a phenomenal task in his day, when seventy-five he made his trip to the Hebrides, and when seventy-seven published his master-work, "The Lives of British Poets." Adam Smith gave to the world his "Wealth of Nations" when fifty-three, and continued for many years to do excellent work.

Kant began the study of his immortal work, the "*Kritik der reinen Vernunft*," when fifty, and published it when fifty-seven. He brought out a second edition when sixty-three.

John Locke, the physician philosopher, wrote his essay on the human understanding between 50 and 58.

The two physicians and the three surgeons who attended the King when operated upon for his attack of appendicitis varied in age from fifty to seventy-five, averaging over fifty-eight, and were all actively engaged in professional or state duties.

Lord Howard, Sir Francis Drake, Sir John Hawkins, Sir Martin Frobisher, Sir Walter Raleigh and Sir Richard Grenville, the six men who commanded the English Fleet against the Spanish Armada, varied in age from 36 to 68, making an average of 51. They all continued to render great services to their country for years afterwards.

Morgagni, the father of pathology, began to write his monumental work, "*De Sedibus et Causis Morborum*," when he was 58; and only completed it when he was 80. During the next ten years, he made several translations of it, and brought out a number of new editions. Between 50 and 58 he edited and brought out in three volumes the works of his master Valsalva.

Manuel Garcia was 49 when he invented the laryngoscope and 50 when he read his paper upon it at the Royal Society.

It will be admitted by every one that the composition of a great musical work is one of the severest tests upon the creative and imaginative powers of man, indeed, is the work of true genius. If we recall for a moment the work of the great composers we find that some of them, like Mozart and Mendelssohn, did their work while young, but they also died young. They were early trees that bore early fruit of most luscious flavor and then perished from the way. But there were others, and they are many, who matured more slowly and gave to the world their masterpieces when comparatively late in life. Rossini composed his *William Tell* when 49; Beethoven wrote his ninth and greatest choral symphony when 52; Bach gave to the world his *Passion* when 44, *Christmas Oratorio* when 49, his *Preludes* when 65, and his *Art of Fugue* when 69, the latter two being considered among the great pieces of the world; Handel composed his *Messiah* in less than a month when 56, *Samson* and *Joshua* were written somewhat later in life, *Judas Maccabaeus* when 61, *Theodora*, which he regarded as his greatest production, when 64, and his *Jephtha*, held by many to excel the *Messiah*, when in his 67th year; Gluck gave out his *Orfeo* at the age of 50, his *Alceste* at the same age, his *Iphigenie en Aulide* when 60, his *Armide* when 63, and his *Iphigenie en Tauride* when 65; Hayden composed and wrote the creation when 66, and the seasons when 69; and, finally, Cherubini composed that marvelous production, his *Requiem* for male voices, when 75, two years before his death. Wagner composed *Parsifal*, his best oratorio, when old.

No one will doubt that great architectural designs, sculpture of the first rank and paintings that are the admiration of all ages, call for the exercise of the highest gifts of the human intellect. Minds that can afford to be measured by this standard must be regarded as having complied with one of the severest tests that could be employed. Sir Christopher Wren was 44 when he began on St. Paul's Cathedral and 79 when he saw it completed. During these 35 years he was constantly at work designing and superintending the erection of that great building. Michelangelo holds a place among the world's geniuses second to none. Between the ages of 59 and 74, or for fifteen years, he unceasingly wrought on his famous paintings of the last judgment, the conversion of St. Paul and the martyrdom of St. Peter. At the age of 60 he wrote his sonnets which are regarded as equal to those of Shakespeare, and at 70 sculptured and set up the Moses group. Rembrandt is another whose brush made him immortal. He died at 69, but began his painting at 20. During these 49 years he produced about 700 pictures. At 35 he finished his *Night Watch*, at 40 the *Rest of the Holy Family*, at 50 the *Old Man*, at 54 the *Syndics of the Cloth Hall*, and at 56 *The Jewish Bride*. The latter two are considered his greatest paintings. Turner is a name of whom all Britain is proud. His *Crossing the Brook* was painted when he was

40. From 54 to 61 he gave to us many of his landscapes such as The Southern Coast, the Rivers of England and Wales, the Rivers of France. From 58 to 70 he produced his Venetian paintings, including the Bridge of Sighs, Venice, Canaletti, the Approach to Venice, Going to the Ball. Sir Joshua Reynolds is another artist of first rank. He died at the age of 69. Among some of his finest paintings may be mentioned Mrs. Nesbitt as Circe at 58, Mrs. Siddons as Tragic Muse at 61, The Duchess of Devonshire and Child at 63, and the Infant Hercules at 65. Sir Edwin Landsear painted his Kind Star at 57, the Flood in the Highlands at 58, Man Proposes at 62, and The Sea Eagles at 67. He died at 71. Sir John E. Millais is another man whose brush worked till its master was near the end of his wonderful career at the age of 67. He painted his famous Gladstone when he was 61 and did some fine paintings after he was 63. Van Dyck and Hans Holbein were young geniuses. The former died at 42 and the latter at 46. But because they have left many masterpieces of art, painted while they were young, that is no reason for supposing they would not have become much greater had they lived longer.

But why extend the list of names? Such works as the Encyclopedia Britannica, Dictionaries of Biography, "The English Men of Letters" series, "The Eminent Statesmen" series, Plutarch's Lives, etc., etc., yield not hundreds but thousands of instances of men at fifty, sixty, seventy, and even eighty, performing great tasks and doing splendid work.

I have examined somewhat carefully the achievements of about 500 distinguished poets, historians, critics, mathematicians, scientists, explorers, warriors, statesmen, inventors, creators of many countries and of different periods from the dawn of history down to the present, and find that about seventy-five per cent. of their best work was given to the world after forty years of age. In coming to this conclusion I take it that the mental operations of Galileo, Brahe and Kepler on the laws of astronomy, of Kant in writing his Kritik, of Smith in composing his Wealth of Nations, of Wellington at Waterloo, of Kelvin in laying the Atlantic Cable, of Roberts in South Africa, of Salisbury as Premier of Britain, of Darwin formulating the origin of species, of Pasteur in his laboratory, of Lister preaching antiseptic surgery, of Treves at the bedside of the King, of Lincoln guiding the affairs of his country, of Grant at Appomattox, are not less important or valuable than their studies and trainings which laid the foundation for these achievements; and I think the consensus of opinion is with me.